**K-5 Math Lesson Plan**

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| **Teacher: Hafez, Richmond, Shaw, Thomas** | | | **Grade: 5** | | | **Date(s)**: August 2012 |
| **Unit Title:**  Understanding the Decimal Place Value System | | | | **Corresponding Unit Task: 2012 Summer Olympics Unit 1 Task 1 – Taught prior to Task 1** | | |
| **Essential Question(s): How can I represent whole numbers in standard (base ten numerals), expanded, and word (number name) form?** | | | | | | |
| **Materials/Resources** | | | | **Essential Vocabulary** | | |
| **Teacher:**  **Vocabulary cards**  **Cardstock for number flags**  **Large place value chart**  **Summarizing numbers** | | **Student:**  **Math journal**  **Pencils**  **Place value chart**  **Notes page**  **Calculator** | | | **Place Value**  **\*Standard Form (Base ten numerals)**  **Expanded Form**  **\*Word Form (Number name)**  **\*Represent**  **\*Express**  **\*Period**  **\*Value \*Digit**  **\*Optional Vocabulary** | |
| **Learning Experience** | | | | | | |
| **8 Mathematical Practices:**  √ 1. Make sense of problems and persevere in solving them.  √ 2. Reason abstractly and quantitatively.  √ 3. Construct viable arguments and critique the reasoning of others.  √ 4. Model with mathematics.  √ 5. Use appropriate tools strategically.  √ 6. Attend to precision.  √ 7. Look for and make use of structure.  √ 8. Look for and express regularity in repeated reasoning. | **Common Core State Standards – 5.NBT.1 – Understand the place value system** | | | | | |
| **I Can Statement(s):**  **I can read and write whole numbers in standard form (base ten numerals).**  **I can read and write whole numbers in expanded form.**  **I can read and write whole numbers in word form (number name).** | | | | | |
| **Activating Strategy/Hook:** Vocabulary Flashcard Matching – Students will be given either a word, definition, or picture. They will find the correct partners for the card they have. | | | | | |
| **Teacher Directed:** Tell the students that the Olympics started about 3,000 years ago in Greece. In 1996 the Olympics were held in Atlanta, GA and that 10,318 athletes competed. Teacher will introduce place value chart to the students. Teacher will place the numbers in the place value chart. Explain to the students that each digit in a number has a specific value. Model how to determine the value of each number, reiterating the place value vocabulary. Explain to students that by understanding the value of each number, we can represent the number in a variety of ways. Using the number from the beginning of the lesson, model for the students how to place each digit into the chart and determine the value of the digits (use the chart provided in Unit 1 Task 1). Explain the different forms in which numbers are expressed (standard/base ten numerals, expanded, and word/number name). Have students refer to the chart at the top of their notes page. Using the Olympics facts below, model representing the numbers in standard, expanded, and word form.  \*\*\*Number of meals served in a day at Olympic Park – 129,263  \*\*\*Number of souvenir hats sold – 14,837  \*\*\*Number of spectators present in one week in Olympic Park – 217,456  Model for students how to read and write the numbers in each form and have students copy the information into the chart provided for notes. (see attached) | | | | | |
| **Guided Practice:** Direct students to look at the second half of the notes sheet. Guide students through the missing information. Discuss how each number is represented and strategies that can be used to ensure that the numbers are expressed correctly in standard (base ten numerals), expanded, and word (number name) form. Have students fill in the missing information.  Teacher will guide students through word problems involving place value and number forms.  (See attached.) | | | | | |
| **Independent Practice:** Students should be broken into groups of four. Prior to the lesson, create a set of number flags for each group. Each group should receive a total of 4 flags. Each set of flags should be cut apart and mixed into a bag for the group.  Explain to students that in the Olympics, the athletes carry flags to represent their country. Today they will be creating flags to represent numbers. Students should remove the pieces and match up the flags. Each flag should contain the same number in standard, expanded, and word form. | | | | | |
| **Closing/Summarizing Strategy:** In the same groups of four, one member of the group will choose an index card. The index card will contain a number written in standard form. Without showing the index card to the rest of the group members, the student will read the number aloud. The other three students will record the number in one of the three forms. | | | | | |
| **Differentiation Strategies** | | | | | | |
| **Extension** | | | **Intervention** | | | **Language Development** |
| Discard One – Students will play a game using a deck of cards with the 10’s and face cards removed. Each card represents the value shown. An ace is worth one. Students will have the place value chart available. The goal of the game is to create the largest number possible. Students will turn over one face card at a time and decide which place in the chart the digit should go in. Once a number has been placed in the chart, it may not be moved, even if a larger number is turned up later. Students will continue to turn over one card at a time and place it in the chart. At any point, if they turn up a number they do not want to use in their chart, they may discard it. They may only discard one card, and once they have discarded it, it may not be used. Once they have filled all places in the number, including the discard, students will determine if they made the largest number possible. If not, they may then rearrange the numbers to create the largest number. After creating the largest number, they will write that number in standard (base ten numerals), expanded and word (number name) form. | | | Students will receive an index card containing the places in which numbers can be held. As they build their numbers, they will use the index cards to label the place in which the digit is held within the number.  Students will use a calculator to input the expanded form and make sure it matches the standard form. They will then read the number on the calculator to also ensure it matches word form. | | | To help students understand the periods used within the place value system and the vocabulary attached to each period, students will use “houses” for each period. (See attached) |
| **Assessment(s):** Students will create their own Olympic number flags. They will each be given a different country. Teacher will read a number to students. They will write the number in standard (base ten numerals), expanded, and word (number name) form. Students will use the colors of their countries flags to put the number forms in.  **Link for flags:** [**http://www.photius.com/flags/alphabetic\_list.html**](http://www.photius.com/flags/alphabetic_list.html) | | | | | | |
| **Teacher Reflection:** (Next steps?)   * Student understandings/misconceptions * Specific notes about students’ thinking * What do I need to reteach/review tomorrow or in the future * New ideas or changes for next time | | | | | | |

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Number Forms – Notes

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| STANDARD/BASE TEN NUMERALS | EXPANDED | WORD/NUMBER NAME |
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| --- | --- | --- |
| STANDARD/BASE TEN NUMERALS | EXPANDED | WORD/NUMBER NAME |
| **601,241** |  |  |
|  | **(4 x 100,000) + (2 x 10,000) + (9 x 1,000) + (7 x 10) + (5 x 1)** |  |
|  |  | **Eight hundred sixty-four thousand, seventy-nine** |

NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

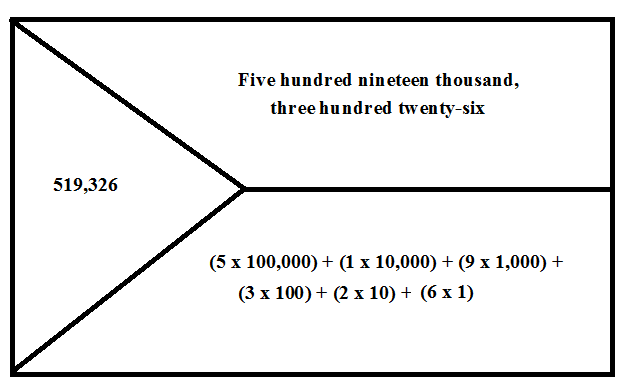
WORD PROBLEMS

1. John says that 213,769 can be represent as (2 x 100,000) + (1 x 10,000) + (3 x 1,000) + (7 x 100) + (6 x 10) + (9 x 1). Lisa says it can be represented as ‘two hundred thirteen thousand, seven hundred sixty-nine. Who is correct and why?
2. Greg took a math test where he had to provide standard and expanded form for a number. On the test, he filled in the following chart. His teacher marked his answer incorrect because his answers did not match the word form provided. Why was his answer incorrect? What is the correct answer?

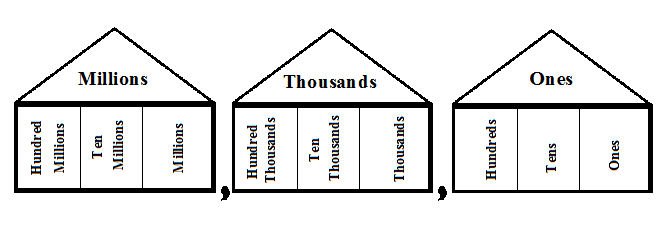
|  |  |  |
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| STANDARD/BASE TEN NUMERALS | EXPANDED | WORD/NUMBER NAME |
| 50073,86 | 500 + 73 +80 + 6 | **Five hundred seventy-three thousand, eighty-six** |

1. Michael Phelps holds the record for most Olympic gold medals won in swimming. He recently signed a contract with Wheaties to be on the cereal box. Wheaties paid him six hundred eighty-one thousand, five hundred twenty-four dollars. What is this number in expanded form?
2. On Monday, Olympic athletes competed in swimming, gymnastics and track. There were 75,326 spectators for swimming, one hundred five thousand, two hundred thirteen spectators watching gymnastics. There were also (8 x 10,000) + (4 x 1,000) + (2 x 100) + (6 x 10) + (7 x1) spectators present for track. How many spectators were present at the games on Monday?

**NUMBER FLAG EXAMPLE**

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**PLACE VALUE HOUSE EXAMPLE**

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